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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/653,583 | 08/31/2000 | Yoshiro Mikami | 503.35282CX1 | 6649 |

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EXAMINER

PIZIALI, JEFFREY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2673

17

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/653,583

Applicant(s)

MIKAMI ET AL.

Examiner

Jeff Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,9-11,14 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) 10,11,14,18-22,25 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,7,9,23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/820,835.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 29, 2003 has been entered.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copies have been filed in parent Application No. 08/820,835, filed on March 19, 1997.

Terminal Disclaimer

3. The terminal disclaimer filed on January 29, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,115,017 has been reviewed and is accepted. The terminal disclaimer has been recorded.

4. The assignment document filed on January 29, 2003 is acceptable as the documentary evidence required by 37 CFR 3.73. If the assignment document is not already recorded with the United States Patent and Trademark Office, it is suggested that the assignment document be submitted for recording among the Office assignment records. See 37 CFR 3.11 and MPEP § 302.

Election/Restrictions

5. Applicant's election with traverse of Species I (claims 1, 6, 7, 9, 23, and 24) in Paper No. 16 (filed 13 August 2003) is acknowledged. The traversal is on the ground that independent claim 1 may be considered a generic claim in relation to Species I-III. This is not found persuasive because independent claim 10 (Species II) does not recite the limitation of the display data holding circuit having one of a coplanar and an inverse stagger structure (as found in supposedly generic claim 1 / Species I). Additionally, independent claim 18 (Species III) recites a variety of alternating current voltage waveform limitations that are not found anywhere within the claims of Species I. Furthermore, the species election requirement (of Paper No. 14, mailed 17 June 2003) was not merely drawn to specific claims (although claim correlations were provided to assist the applicants). The species election requirement was explicitly drawn to the embodiments disclosed in the pending specification. As evidenced by the specification and illustrations, Species I (see Figures 2-4 and Page 11, Line 19 - Page 15, Line 11) is not a generic version of either Species II (Figures 12-13 and Page 18, Line 18 - Page 20, Line 17) or Species

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III (Figures 21-25 and Page 34, Line 4 - Page 40, Line 22). Each Species entails an entirely unique circuitry arrangement, and is driven with separate and distinct timing diagrams.

The requirement is still deemed proper and is therefore made FINAL.

6. Claims 10, 11, 14, 18-22, 25, and 26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected Species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 16 (filed 13 August 2003).

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 6, 7, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (US 5,194,974) in view of Matsuda et al. (US 5,352,907).

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Regarding claim 1, Hamada et al. discloses a liquid crystal display apparatus (see the abstract) having a pair of substrates of which at least one substrate is transparent (see Column 6, Line 15) and a liquid crystal layer sandwiched between the substrates (see Column 1, Lines 20-21), comprising:

a plurality of scanning electrodes [Fig. 2; Y] formed on one of the substrates (see Column 5, Line 55); and

a plurality of signal electrodes [Fig. 2; X] intersecting in a matrix form with the plurality of scanning electrodes (see Figure 2 and Column 5, Line 54);

wherein the display apparatus further comprises, within each of the regions surrounded by the plurality of scanning electrodes and the plurality of signal electrodes:

(a) a display data holding circuit [Fig. 4; TFT1 and C1] connected to a corresponding scanning electrode [Fig. 4; Y₁] and signal electrode [Fig. 4; X₁], for fetching and storing display data from a signal electrode in response to a scanning signal (see Column 6, Lines 54-55) for holding a display image [in C1] without updating the display data [in C2] while a power supply [Fig. 4; Vc] to the display apparatus is maintained (see Column 6, Lines 59-65);

(b) a switching device [Fig. 4; TFT2] connected to the display data holding circuit, its switching operation being controlled by the display data holding circuit (see Column 6, Lines 59-65); and

(c) a display electrode [Fig. 4; C2] connected to the switching device (see Column 5, Lines 66-68). Hamada does not expressly disclose the display data holding circuit having one of a coplanar and an inverse stagger structure.

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However, Matsuda et al. discloses thin film transistor circuits of a coplanar as well as an inverse stagger structure (see Column 1, Lines 49-54). Hamada and Matsuda are analogous art because they are from the shared field of thin film transistor circuits for controlling liquid crystal elements. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Matsuda's coplanar or inverse stagger structure with Hamada's display data holding circuit, so as to manufacture the liquid crystal display apparatus with conventional TFT design techniques.

Regarding claim 6, Hamada et al. discloses the display data holding circuit includes a thin film transistor [Fig. 4; TFT1] having a gate connected to the corresponding scanning electrode and one of a drain and a source connected to the corresponding signal line, and a capacitor [Fig. 4; C1] at least partially formed by a portion of one of the drain and the source of the thin film transistor (see Column 5, Lines 53-65).

Regarding claim 7, Hamada et al. discloses the switching device has a thin film transistor [Fig. 4; TFT2] which is connected to the other of the drain and source of the thin film transistor of the display data holding circuit at a gate and to the display electrode at one of the drain and source (see Column 5, Lines 53-65).

Regarding claim 24, Hamada et al. discloses the liquid crystal layer is a guest-host type liquid crystal (see Column 1, Lines 28-39).

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10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (US 5,194,974) and Matsuda et al. (US 5,352,907) as applied to claim 1 above, and further in view of Katayama (US 5,625,589).

Regarding claim 9, this claim is rejected by the reasoning applied in the above rejection of claim 6; however, neither Hamada et al. nor Matsuda et al. expressly discloses a static memory circuit. On the other hand, Katayama discloses substituting a capacitor + transistor circuit with a static memory circuit including a plurality of thin film transistors (see Column 1, Lines 46-57). Hamada, Matsuda, and Katayama are analogous art, because they are from the shared field of transistor circuitry. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Katayama's static memory circuit as Hamada and Matsuda's combined display data holding circuit, so as not to require refresh operations.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (US 5,194,974) and Matsuda et al. (US 5,352,907) as applied to claim 1 above, and further in view of Boyd et al. (US 4,472,026).

Regarding claim 23, neither Hamada et al. nor Matsuda et al. expressly discloses the display electrode is an opaque reflection electrode arranged in overlapping relationship with at least one of the scanning electrode, the signal electrode and a thin film transistor for enabling driving of the liquid crystal display apparatus in a reflection type display mode. However, Boyd discloses an opaque reflection electrode arranged in overlapping relationship with at least one of a scanning electrode, a signal electrode and a thin film transistor for enabling driving of a liquid crystal display apparatus in a reflection type display mode (see Column 4, Line 55 - Column 5,

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Line 9). Hamada, Matsuda, and Boyd are analogous art, because they are from the shared field of liquid crystal display devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Boyd's opaque reflection electrode as Hamada and Matsuda's combined display electrode, so as to provide a highly reflective display mode.

Response to Arguments

12. Applicant's arguments with respect to claims 1, 6, 7, 9, 23, and 24 have been considered but are moot in view of the new grounds of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zhang (US 5,254,208) is cited to further evidence the state of art pertaining to liquid crystal displays.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



J.P.

29 September 2003



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
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